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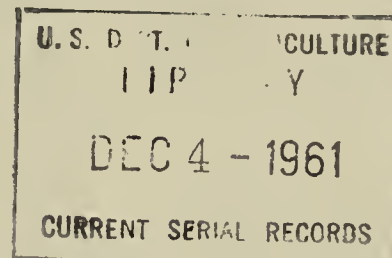
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TECHNICAL NOTES

LAKE STATES FOREST EXPERIMENT STATION U.S. DEPARTMENT OF AGRICULTURE · · FOREST SERVICE

No. 613

An Inexpensive Water-Level Point Gage^{1/}



Point gages are often needed at water-level recording stations to provide checks on the performance of the recorder. Commercial gages are available for this purpose. But since they are quite expensive, most establishments using this equipment have only one, which is moved from one water-level measuring station to another. So that a point gage could be permanently mounted at each gaging site, an inexpensive point gage was designed (fig. 1).

Materials needed for the gage are:

1 piece aluminum, 1/4" x 1" x 34"

4 flat head bolts, 1/2", No. 10-24

1 flat head bolt, 1", No. 10-32

1 thumb nut to fit No. 10-32 bolt

(knurled nut shipped with each

recorder for securing chart

cylinder to the stud)

1 rubber washer to fit No. 10-32 bolt

Cost of materials is approximately one dollar. Construction is relatively simple; instructions and photographs are given on the back of this page. The unit can be fabricated and assembled in about 2 hours by local craftsmen.



Figure 1.--Point gage complete.

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^{1/} Reported from the Station's La Crosse, Wis., field unit, where research is conducted in cooperation with the Wisconsin Conservation Department.

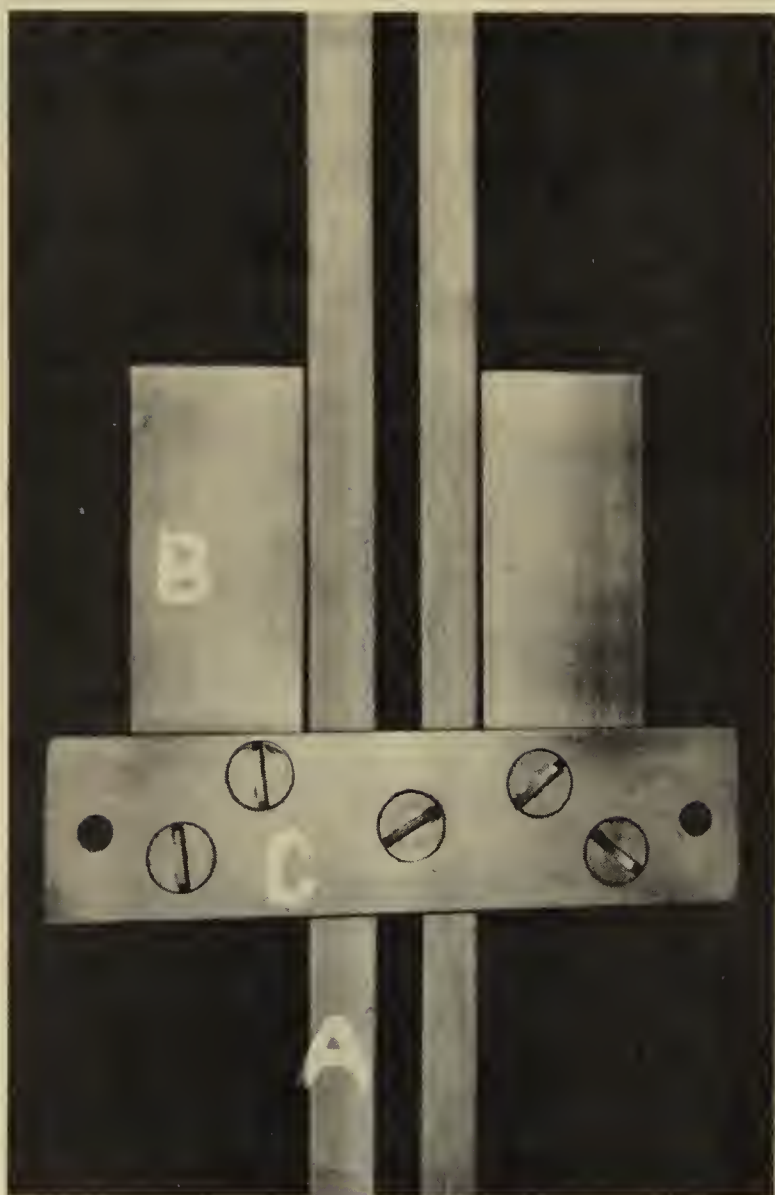


Figure 2.--Construction detail of mounting bracket. Holes near sides are for mounting to reference bar.

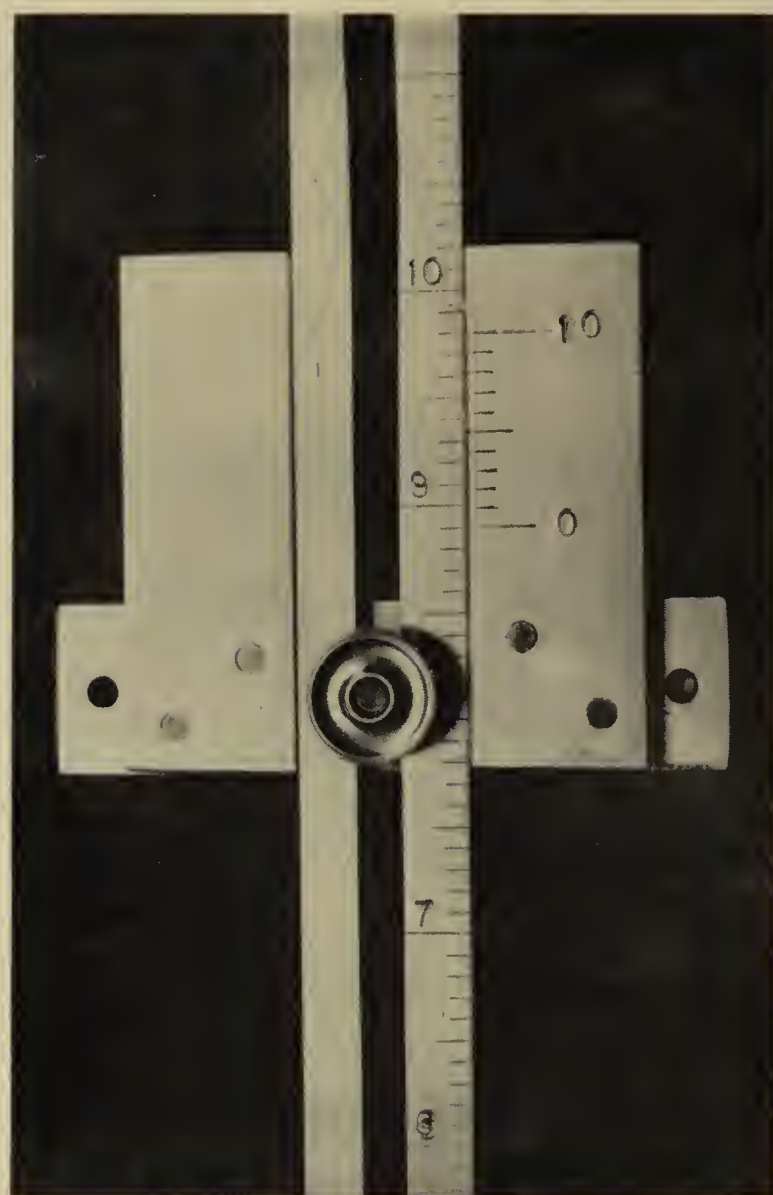


Figure 3.--Detailed front view of gage showing graduation of staff and vernier and thumb nut.

The 34-inch piece of aluminum is cut into four lengths: one 24-inch, one 4-inch, and two 3-inch sections (fig. 2, parts A, C, and B respectively). A 1/4-inch-wide slot is cut in part A for a distance of 15 inches, beginning about an inch from one end. The lower end is beveled to a wedge point of approximately 90°.

The 4-inch piece (part C) used as the mounting bracket has two holes for attaching to a reference bar. Parts B are attached 1 inch apart with two screws each, the heads of which are countersunk in C. The center screw, mounted in a tapped hole in C, serves as a holder for the thumb nut used for securing A (fig. 3). The right-hand side of A is graduated in feet, tenths, and hundredths, and a vernier, made by graduating 0.09 of a foot into 10 equal parts, is etched on part B to complete the construction.

To take a reading, the thumb nut is loosened and the staff is lowered to a point just above the water surface. The nut is then tightened so that the staff can be moved under slight pressure. A rubber washer between the nut and staff permits this.

The gage described here was designed to measure a range in head of 1 foot. It can be mounted on a reference bar 20 inches above the zero water level. For longer gages it might be desirable to attach a section comparable to C across the tops of parts B. This would give more bearing surface and reduce the chances of tilting the gage forward or backward during reading.